UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

MEMORANDUM:

From: Kevin Sweeney, Senior Entomologist

Date: March 27, 2013

Subject: PRODUCT PERFORMANCE DATA EVALUATION RECORD

DP barcode: 406763
Decision no.: 469771
Submission no: 923871
Action code: R310
Product Name: Permatek ™ 100 Encaps
EPA Reg. No or File Symbol: 72616-I
Formulation Type: capsule suspension
Ingredients statement from the label with PC codes: 10% bifenthrin (pc code 128825)
Application rate: 0.4 pints to 1.2 pints per cubic yard of composite material.
0.4 pints to 1.6 pints per cubic yard of wood-based veneer product
Apply as a coarse spray, dip, or by brushing to the surface of lumber or millwork. Make the applications with a 1:20 (0.5% bifenthrin) or 1:40 (0.25% bifenthrin) dilution. A penetrating agent may aid in treatment.
Use pattern: wood and composite wood treatments.
OCSPP Guidelines: 810.36

I. Action Requested: Review one product specific cited efficacy study and new label.

II. Background: This product is a 10% bifenthrin concentration that is a suspension concentrate. The registrant also referred to three bifenthrin based products as being similar to their product: EPA Reg. Nos. 279- 3115, 53883-236, and 73748-7.

Similarity determination: Only EPA Reg. No. 53883-236, a 23.4% bifenthrin product, has a similar use pattern to the pending product. Furthermore, the cited product has more detailed descriptions of bifenthrin loading and presents a chart for preparing treatment dilutions.

III. Study Reviews

MRID48777602. Siraa, A. 2012. Efficacy Data for Permatek 100 Encaps as a Glueline Insecticide for LVL* for Veneer-Based Products.

***LVL = Laminated Veneer Lumber**

Purpose: To determine the efficacy of the subject product against termites.

Materials and Methods:

The registrant used the Australian Wood Preservation Committee protocols (AWPC 2007). The Australian standard specifies that > 95% efficacy must be achieved, measured in terms of wood mass after a minimum of 16 weeks (4 months) exposure to termites. *Pinus radiata* was used as the bait wood.

Experimental Design: The "Brick Assembly technique" was used and the data were generated from field studies with the Australian mound building species, *Coptotermes acinaciformis*, in trials conducted in Australia. A trench is dug into the soil next to a termite mound. Hollow concrete blocks were laid end to end with the hollow side facing up. Untreated wood is placed into the holes in the block as termite bait. A "sandwich or lunchbox assembly (5 liters in size)" was prepared in laboratory and placed in the center of the wood lining the hollow of each block at each field site. Six block replicates were used for each mound at each field site. The trial was conducted for 6-7 months.

[I downloaded a PPT presentation (see attached) from the Internet that was prepared by this company. This PPT presentation clearly describes the technique and the experiment for some of their bifenthrin based products (including a capsule suspension (CS)). In the study from the Internet, the company applied bifenthrin at the rate of 25g per cubic meter of wood.]

Application rate: The application rates on the proposed label are 0.4 pints to 1.6 pints per cubic yard of wood (1 cubic yard = 27 cubic feet). The dilutions presented on the label are 1:20 (0.5%) and 1:40 (0.25%).

The application rate in the submitted study was presented as volume (expressed in milliliters) of product/cubic meter of wood.

One pint = 29.6 ml x 16 = 473.6 ml; Label rate = 0.4 pints = 189.44 ml and 1.6 pints = 757.76 ml
One cubic meter = 35.31 cubic feet
One cubic yard = 0.76 cubic meters (27 cubic feet/35.31 cubic feet).

The study presented different rates for the different treatments tested. The lowest rate was 120 ml/cubic meter; equivalent to 0.253 pints per cubic meter or 0.19 pints per cubic yard.
In terms of bifenthrin, they applied 12 ml of bifenthrin per cubic meter, equivalent to 12 x 1.01 = 12.12g bifenthrin/cubic meter.

The highest rate was 437 ml/cubic meter, equivalent to 0.922 pints per cubic meter or 0.7 pints per cubic yard of wood.

Results:

The results were reported in terms of mass loss and compared to the untreated controls.

There was not a clear dose/response trend in the studies. Generally, as the dose increased, damage decreased. However, when termite feeding pressure was very high, the mass loss in the bifenthrin treatments increased regardless of dose. In all of the tests, the bifenthrin treatment reduced damaged when compared to the control by at least 20x. Some tests result in 40x reduction in damage. Efficacy was very good.

Conclusion: The treatments were effective in reducing wood damage for up to 7 months (28 weeks). However, they were not 100% effective.

Recommendation: The study is acceptable but EPA guidelines (810.3600) recommend two years of field trial data to evaluate wood preservative products. In addition, the registrant has only submitted/cited data from Australia with testing against a mound building termite species that is not endemic to the USA.

Entomologist's Recommendations:

1. The submitted data are acceptable provided the registrant agrees to:

a. Generate data on termite species from the United States for a minimum of 24 months. Data should be collected against *Reticulitermes* spp. and *Coptotermes formosanus.* Testing should be conducted with more than one label rate and replicated 10x at least three field sites. Data should be submitted in 30 months.

b. Data on wood borers should be provided and the pest wood borers to be controlled should be listed on the label.

Note: These data may be submitted as a condition of registration if the Product Manager determines that conditional data are an acceptable means of satisfying these data requirements. Otherwise, the submitted data do not stand-alone to satisfy the product performance data requirements.

2. The product label is acceptable provided the registrant (for general guidance on labeling changes, please refer to cited product EPA Reg. No. 53883-236):

a. Inserts a dilution chart describing how to prepare the label dilutions per 100 gallons of finished dilution.

b. Changes "For Industrial or Commercial Use Only" to "Recommended for Industrial or Commercial Use Only."

c. Provides detailed directions on how to conduct each of the treatment categories on the label. The current directions are too general.